



memorandum

DATE: January 4, 2021
TO: John Kerenyi, Traffic Engineer, City of Moreno Valley
FROM: Sandipan Bhattacharjee, P.E., T.E., AICP, ENV-SP
SUBJECT: Moreno Valley Trade Center Trip Generation Comparison
(Warehouse Scenario)

Translutions, Inc. (Translutions) is pleased to provide this memorandum discussing the trip generation in the Moreno Valley Trade Center Traffic Impact Analysis (TIA) and the proposed trip generation that includes High-Cube Cold Storage warehouse facilities and warehouse facilities.

Background. On June 12, 2020, Translutions submitted a TIA for the Moreno Valley Trade Center project in the City of Moreno Valley. The project included the construction of approximately 1,332,380 square feet of warehouse uses. The project's site plan has been revised since the TIA and now includes 1,328,853 square feet of which, approximately 50,000 square feet of the project is being proposed as High-Cube Cold Storage facilities. The project will now include 50,000 square feet of High-Cube Cold Storage facilities and 1,278,853 square feet of warehouse facilities. It should be noted that the TIA was based on the first version of the site plan, that had a larger building area (1,332,380 square feet), to provide a conservative, worst-cast analysis. Therefore, this trip generation comparison will include a comparison of the original trip generation from the TIA to the proposed trip generation including the High-Cube Cold Storage facilities.

Proposed Project. The proposed project consists of 50,000 square feet of High-Cube Cold Storage warehouse facilities and 1,278,853 square feet of warehouse facilities. The trip generation for the proposed project is based on trip generation rates for Land Use 157 "High-Cube Cold Storage Warehouse" and Land Use 150 "Warehousing" from Institute of Transportation Engineers' (ITE) Trip Generation (10th Edition). Table A summarizes the proposed project trip generation for the warehouse facilities. Table B shows the trip generation for the proposed High-Cube Cold Storage facilities. Table C summarizes the project trip generation for both the warehouse and High-Cube Cold Storage facilities. As shown in Table C, the total project trip generation for the warehouse and High-Cube Cold Storage facilities is forecast to generate 363 PCE trips in the a.m. peak hour, 404 PCE trips in the p.m. peak hour and 3,709 daily PCE trips.

Trip Generation from Original TIA. As stated earlier, the TIA for the original project was submitted to the City in June 2020. The trip generation used for the analysis was based on rates for Land Use 150 "Warehouse" from ITE Trip Generation (10th Edition). Table D shows the project trip generation from the approved TIA. As shown in Table D, the approved project is forecast to generate 363 PCE trips in the a.m. peak hour, 404 PCE trips in the p.m. peak hour, and 3,665 PCE daily trips.

Trip Generation Comparison. The proposed warehouse that includes the High-Cube Cold Storage warehouse and warehouse facilities will generate the same total PCE trips during the a.m. peak hour and p.m. peak hour and 44 more daily total PCE trips, when compared to the original trip generation in the TIA. Although the daily trips are more than the original TIA, they are not substantially more and would not likely create new impacts.

Conclusion. Since the trip generation of the proposed project during the a.m. peak hour, p.m. peak hour, and daily are not substantially higher than those disclosed in the TIA submitted in June 2020, the impacts from the proposed project are anticipated to be the same as those disclosed in the TIA and addressed in the prior CEQA analyses.

Table A: Project Trip Generation (Warehouse)

Land Use	Units	Peak Hour						Daily
		AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Total Vehicle Rates								
Trip Generation Rates ¹	TSF	0.131	0.039	0.170	0.051	0.139	0.190	1.740
PCE Inbound/Outbound Splits		77%	23%	100%	27%	73%	100%	50%/50%
Passenger Car Equivalent Rates Calculations								
Passenger Cars								
Recommended Mix (%) ²		61.90%	61.90%	61.90%	61.90%	61.90%	61.90%	61.90%
PCE Factor ³		1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCE Rates		0.081	0.024	0.105	0.032	0.086	0.118	1.077
2-Axle Trucks								
Recommended Mix (%) ²		6.45%	6.45%	6.45%	6.45%	6.45%	6.45%	6.45%
PCE Factor ³		1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCE Rates		0.013	0.004	0.016	0.005	0.013	0.018	0.168
3-Axle Trucks								
Recommended Mix (%) ²		8.65%	8.65%	8.65%	8.65%	8.65%	8.65%	8.65%
PCE Factor ³		2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCE Rates		0.023	0.007	0.029	0.009	0.024	0.033	0.301
4-Axle Trucks								
Recommended Mix (%) ²		22.99%	22.99%	22.99%	22.99%	22.99%	22.99%	22.99%
PCE Factor ³		3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCE Rates		0.090	0.027	0.117	0.035	0.096	0.131	1.200
Warehouse Net PCE Rate		0.207	0.062	0.268	0.081	0.219	0.300	2.747
Total Project Trip Generation (Trips, By Vehicle Type)								
Warehouse	1,282.38 TSF							
Passenger Cars		104	31	135	41	110	151	1,382
2-Axle Trucks		12	3	15	5	11	16	144
3-Axle Trucks		15	4	19	7	15	22	194
4+ Axle Trucks		39	12	51	16	41	57	514
All Trucks		66	19	85	28	67	95	852
Total Vehicles		170	50	220	69	177	246	2,234
Total Project Trip Generation (Passenger Car Equivalent Trips, By Vehicle Type)								
Passenger Cars		104	31	135	41	110	151	1,382
Truck PCE								
2-Axle Trucks		18	5	23	7	17	24	216
3-Axle Trucks		30	8	38	14	30	44	388
4+ Axle Trucks		117	36	153	48	123	171	1,542
Total Truck PCE		165	49	214	69	170	239	2,146
Total PCE		269	80	349	110	280	390	3,528

¹ Rates based on Land Use 150 "Warehousing" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

² Recommended Truck Mix Percentages per SCAQMD Truck Trip Generation Study.

³ Recommended PCE Factor per SBCTA Guidelines

Table B: Project Trip Generation (High-Cube Cold Storage)

Land Use	Units	Peak Hour						Daily
		AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Total Vehicle Rates								
Trip Generation Rates ¹	TSF	0.085	0.025	0.110	0.034	0.086	0.120	2.120
PCE Inbound/Outbound Splits		77%	23%	100%	28%	72%	100%	50%/50%
Passenger Car Equivalent Rates Calculations								
Passenger Cars								
Recommended Mix (%) ²		55.82%	55.82%	55.82%	55.82%	55.82%	55.82%	55.82%
PCE Factor ³		1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCE Rates		0.047	0.014	0.061	0.019	0.048	0.067	1.183
2-Axle Trucks								
Recommended Mix (%) ²		7.48%	7.48%	7.48%	7.48%	7.48%	7.48%	7.48%
PCE Factor ³		1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCE Rates		0.010	0.003	0.012	0.004	0.010	0.013	0.238
3-Axle Trucks								
Recommended Mix (%) ²		10.03%	10.03%	10.03%	10.03%	10.03%	10.03%	10.03%
PCE Factor ³		2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCE Rates		0.017	0.005	0.022	0.007	0.017	0.024	0.425
4-Axle Trucks								
Recommended Mix (%) ²		26.66%	26.66%	26.66%	26.66%	26.66%	26.66%	26.66%
PCE Factor ³		3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCE Rates		0.068	0.020	0.088	0.027	0.069	0.096	1.696
Warehouse Net PCE Rate		0.142	0.042	0.184	0.056	0.144	0.200	3.542
Total Project Trip Generation (Trips, By Vehicle Type)								
Warehouse	50.00	TSF						
Passenger Cars			3	1	4	2	2	4
2-Axle Trucks			1	0	1	1	0	1
3-Axle Trucks			1	0	1	1	0	1
4+ Axle Trucks			2	0	2	1	1	2
All Trucks			4	0	4	3	1	4
Total Vehicles			7	1	8	5	3	8
Total Project Trip Generation (Passenger Car Equivalent Trips, By Vehicle Type)								
Passenger Cars			3	1	4	2	2	4
Truck PCE								
2-Axle Trucks			2	0	2	2	0	2
3-Axle Trucks			2	0	2	2	0	2
4+ Axle Trucks			6	0	6	3	3	6
Total Truck PCE			10	0	10	7	3	10
Total PCE			13	1	14	9	5	14

¹ Rates based on Land Use 157 "High-Cube Cold Storage Warehouse" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

² Recommended Truck Mix Percentages per SCAQMD Truck Trip Generation Study for Cold Storage.

³ Recommended PCE Factor per SBCTA Guidelines

Table C: Total Project Trip Generation Summary

Land Use	Units	Peak Hour						Daily
		AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Passenger Cars		107	32	139	43	112	155	1,442
Truck PCE								
2-Axle Trucks		20	5	25	9	17	26	228
3-Axle Trucks		32	8	40	16	30	46	410
4+ Axle Trucks		123	36	159	51	126	177	1,629
Total Truck PCE		175	49	224	76	173	249	2,267
Total PCE		282	81	363	119	285	404	3,709

¹ #REF!

² Recommended Truck Mix Percentages per SCAQMD Truck Trip Generation Study.

³ #REF!

Table D: Project Trip Generation From TIA

Land Use	Units	Peak Hour						Daily
		AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Total Vehicle Rates								
Trip Generation Rates ¹	TSF	0.131	0.039	0.170	0.051	0.139	0.190	1.740
PCE Inbound/Outbound Splits		77%	23%	100%	27%	73%	100%	50%/50%
Passenger Car Equivalent Rates Calculations								
Passenger Cars								
Recommended Mix (%) ²		61.90%	61.90%	61.90%	61.90%	61.90%	61.90%	61.90%
PCE Factor ³		1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCE Rates		0.477	0.024	0.105	0.032	0.086	0.118	1.077
2-Axle Trucks								
Recommended Mix (%) ²		6.45%	6.45%	6.45%	6.45%	6.45%	6.45%	6.45%
PCE Factor ³		1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCE Rates		0.013	0.004	0.016	0.005	0.013	0.018	0.168
3-Axle Trucks								
Recommended Mix (%) ²		8.65%	8.65%	8.65%	8.65%	8.65%	8.65%	8.65%
PCE Factor ³		2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCE Rates		0.023	0.007	0.029	0.009	0.024	0.033	0.301
4-Axle Trucks								
Recommended Mix (%) ²		22.99%	22.99%	22.99%	22.99%	22.99%	22.99%	22.99%
PCE Factor ³		3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCE Rates		0.090	0.027	0.117	0.035	0.096	0.131	1.200
Warehouse Net PCE Rate		0.602	0.062	0.268	0.081	0.219	0.300	2.747
Total Project Trip Generation (Trips, By Vehicle Type)								
Warehouse	1,332.38 TSF							
Passenger Cars		109	32	141	43	114	157	1,436
2-Axle Trucks		12	3	15	5	12	17	150
3-Axle Trucks		15	5	20	6	16	22	201
4+ Axle Trucks		41	12	53	17	42	59	534
All Trucks		68	20	88	28	70	98	885
Total Vehicles		245	52	229	71	184	255	2,321
Total Project Trip Generation (Passenger Car Equivalent Trips, By Vehicle Type)								
Passenger Cars		109	32	141	43	114	157	1,436
Truck PCE								
2-Axle Trucks		18	5	23	8	18	26	225
3-Axle Trucks		30	10	40	12	32	44	402
4+ Axle Trucks		123	36	159	51	126	177	1,602
Total Truck PCE		171	51	222	71	176	247	2,229
Total PCE		280	83	363	114	290	404	3,665

¹ Rates based on Land Use 150 "Warehousing" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

² Recommended Truck Mix Percentages per SCAQMD Truck Trip Generation Study.

³ Recommended PCE Factor per SBCTA Guidelines